



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/568,569	11/06/2006	Tony Richards	1009-003	6482
47654	7590	03/23/2010		
BAINWOOD HUANG & ASSOCIATES LLC 2 CONNECTOR ROAD WESTBOROUGH, MA 01581			EXAMINER	
			DANIEL JR, WILLIE J	
			ART UNIT	PAPER NUMBER
			2617	
			MAIL DATE	DELIVERY MODE
			03/23/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/568,569	Applicant(s) RICHARDS ET AL.
	Examiner WILLIE J. DANIEL JR	Art Unit 2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(o).

Status

- 1) Responsive to communication(s) filed on 02 March 2010.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) 24-35 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-23 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO/DS/06)
 Paper No(s)/Mail Date _____
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date _____
- 5) Notice of Informal Patent Application
 6) Other: _____

DETAILED ACTION

1. This action is in response to applicant's amendment filed on 02 March 2010. **Claims 1-35** are now pending in the present application and **claims 24-35** are non-elected. This office action is made **Non-Final**.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on
 - a. 02 March 2010is in compliance with the provisions of 37 CFR 1.97 and is being considered by the examiner.

Election/Restrictions

3. Applicant's election without traverse of claims 1-23 in the reply filed on 02 March 2010 is acknowledged.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 12-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- a. Claims 12-15 include the limitation "...**Proximity detecting apparatus**...according to claim 1..." as recited in line(s) 1-2 of claim 12. Claims 12-15 are not written in proper dependent form. For example, the preamble of claim 12 is drawn to a **proximity detecting apparatus** and the preamble of claim 1 is drawn to a **radio frequency receiver**. The claim structure appears to be questionable. Therefore, claim 12 appears to be an independent claim that references the limitations of independent claim 1. See MPEP § 2173.05(p)(II); § 2173.05(f).

Regarding **claim 12-15**, the claims recite language that is not clear and concise in which the Examiner respectfully request the applicant to clarify the claims. If the applicant considers the current language to be sufficient, the Examiner respectfully requests page(s), line(s), and/or drawing(s) of the instant application that supports the claim language and any supportive comment(s) to help clarify and resolve this issue(s).

5. Due to the 112 rejection of the current claim language, the Examiner has given a reasonable interpretation of said language and the claims are rejected as broadest and best interpreted. In addition, applicant is welcomed to point out where in the specification the Examiner can find support for this language if Applicant believes otherwise.
6. This list of examples is not intended to be exhaustive.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Seal (US 6,396,438 B1)** further supported by **Duret (6,667,612 B2)**.

Regarding **claim 1**, Seal discloses a radio frequency receiver for use in a proximity detecting system (see col. 5, lines 58-60; abstract; Figs. 1 & 20), the radio frequency receiver comprising

at least one antenna coil (e.g., sensors) operable to receive radio frequency signals (see col. 5, lines 1-10, 18-22; Figs. 1-2 & 4), where the system uses sensors for receiving and transmitting;

tunable receiver circuitry arranged in operative association with the antenna coil and being arranged to modify the frequency at which radio signals are received by the radio frequency receiver (see col. 5, lines 32-39; Fig. 2);

a signal processor (e.g., communications processor 1406) arranged to amplify and filter signals received by the radio frequency receiver (see col. 6, lines 21-24; col. 10, lines 42-44; Fig. 14); and

a processing system is arranged to receive radio signals amplified and filtered by the signal processor (e.g., 1406) so as to evaluate a signal strength associated with each said antenna coil, the processing system being arranged to evaluate a distance between a radio frequency transmitter and the radio frequency receiver on the basis of evaluated signal strengths associated with radio signals received by at least one antenna coil (see col. 5, lines 39-50; col. 6, lines 21-24; Fig. 3);

wherein the radio frequency receiver is operable to receive and process radio signals of frequencies between 100kHz and 10MHz (see col. 5, lines 1-10; col. 10, lines 26-28). Seal clearly discloses the feature(s) indicated above as evidenced by the fact that one of ordinary skill in the art would clearly recognize. However, the examiner maintains that the feature(s) 100kHz was well known in the art, as taught by Duret.

As further support in the same field of endeavor, Duret discloses the feature(s) 100kHz (see col. 3, lines 22-27).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Seal as further supported by Duret to have the feature(s) 100kHz, in order to provide a system for positioning a mobile object, as taught by Duret (see col. 2, lines 2-7).

Regarding **claim 2**, the combination of Seal and Duret discloses every limitation claimed, as applied above (see claim 1), in addition Seal further discloses a radio frequency receiver according to claim 1, including three antenna coils, wherein the tunable receiver circuitry is selectively arranged to cooperate with each said antenna coil (see col. 5, lines 32-39; Figs. 1-2, 4, & 20).

Regarding **claim 3**, the combination of Seal and Duret discloses every limitation claimed, as applied above (see claim 2), in addition Seal further discloses a radio frequency receiver according to claim 2, wherein each antenna coil is positioned along an axis in a direction extending substantially perpendicular to that occupied by the other antenna coils (see col. 5, lines 21-22,32-37; col. 6, lines 8-12; Figs.1-2, 4, & 20), where the system can use other angles or orientation. As a note, Duret at the least discloses the feature(s) wherein each

antenna coil is positioned along an axis in a direction extending substantially perpendicular to that occupied by the other antenna coils (see col. 7, lines 30-35).

Regarding **claim 4**, the combination of Seal and Duret discloses every limitation claimed, as applied above (see claim 2), in addition Seal further discloses a radio frequency receiver according to claim 2, wherein, in a first operating condition, the receiver circuitry is arranged to select each of the three antenna coils in accordance with a specified selection procedure (see col. 15, lines 15-18,53-57; abstract).

Regarding **claim 5**, the combination of Seal and Duret discloses every limitation claimed, as applied above (see claim 4), in addition Seal further discloses a radio frequency receiver according to claim 4, wherein the selection procedure comprises selecting each of the antenna coils sequentially (see col. 15, lines 15-18,53-57; abstract).

Regarding **claim 6**, the combination of Seal and Duret discloses every limitation claimed, as applied above (see claim 2), in addition Seal further discloses a radio frequency receiver according to claim 2 to claim 4, wherein the processing system is arranged to evaluate a distance between a radio frequency transmitter and the radio frequency receiver on the basis of evaluated signal strengths associated with radio signals received by each antenna coil (see col. 5, lines 39-50; col. 6, lines 21-24; Fig. 3).

Regarding **claim 7**, the combination of Seal and Duret discloses every limitation claimed, as applied above (see claim 4), in addition Seal further discloses a radio frequency receiver according to claim 4, wherein the receiver circuitry is arranged to operate in a second operating condition wherein none of the antenna coils is selected and the signal

processor is arranged to amplify and filter radio signals in the second operating condition (see col. 5, lines 39-50; col. 6, lines 21-24; col. 10, lines 42-46; Figs. 3-4).

Regarding **claim 8**, the combination of Seal and Duret discloses every limitation claimed, as applied above (see claim 7), in addition Seal further discloses a radio frequency receiver according to claim 7, wherein the processing system is arranged to use the filtered and amplified signals corresponding to the second operating condition to modify the signal strengths evaluated in the first operating condition (see col. 5, lines 39-50; col. 6, lines 21-24; col. 10, lines 42-46; Figs. 3-4).

Regarding **claim 9**, the combination of Seal and Duret discloses every limitation claimed, as applied above (see claim 8), in addition Seal further discloses a radio frequency receiver according to claim 8, wherein the signal processor is arranged to identify, within a time period, a sequence of frequencies in the amplified and filtered radio signals (see col. 10, lines 42-46; col. 5, lines 37-39; col. 6, lines 21-24; Fig. 14).

Regarding **claim 10**, the combination of Seal and Duret discloses every limitation claimed, as applied above (see claim 9), in addition Seal further discloses a radio frequency receiver according to claim 9, wherein the signal processor is adapted to identify correlation between filtered radio signals in order to identify a sequence of frequencies in the received signals (see col. 10, lines 42-46; col. 6, lines 21-24; Fig. 14).

Regarding **claim 11**, the combination of Seal and Duret discloses every limitation claimed, as applied above (see claim 8), in addition Seal further discloses a radio frequency receiver according to claim 8, wherein the signal processor is arranged to identify a modulation pattern within the received radio signals and to compare the identified

modulation pattern with a specified modulation pattern (see col. 10, lines 42-46; col. 6, lines 21-24,34-43; Fig. 14).

Regarding **claim 12**, the combination of Seal and Duret discloses every limitation claimed, as applied above (see claim 1), in addition Seal further discloses a proximity detecting apparatus comprising a low radio frequency receiver according to claim 1 and a low radio frequency transmitter arranged to transmit radio signals of frequencies less than 10 MHz, wherein the radio frequency receiver is arranged to receive and process signals from said radio frequency transmitter so as to generate data indicative of a distance between said radio frequency transmitter and radio frequency receiver (see col. 5, lines 1-10,18-22,39-42; col. 6, lines 21-24,34-43; Figs. 1-2, 4, & 20).

Regarding **claim 13**, the combination of Seal and Duret discloses every limitation claimed, as applied above (see claim 12), in addition Seal further discloses a proximity detecting apparatus according to claim 12, including a further said radio frequency transmitter; wherein said receiver antenna coils are arranged to receive first signals from the radio frequency transmitter and second signals from said further radio frequency transmitter (see col. 5, lines 1-10,18-22,39-42; col. 6, lines 21-24,34-43; Figs. 1-2, 4, & 20).

Regarding **claim 14**, the combination of Seal and Duret discloses every limitation claimed, as applied above (see claim 13), in addition Seal further discloses a proximity detecting apparatus according to claim 13, wherein the processing system is arranged to access a function operable to output data indicative of a position in response to input indicative of signal strength received by the antenna coils, the processing system being arranged to input first and second signals to said function and to combine output indicative of

first and second positions corresponding thereto so as to identify a position of the radio frequency receiver (see col. 5, lines 39-50; col. 6, lines 21-24; Fig. 3).

Regarding **claim 15**, the combination of Seal and Duret discloses every limitation claimed, as applied above (see claim 1), in addition Seal further discloses a proximity detecting apparatus comprising first and second low radio frequency receivers according to claim 1, and a low radio frequency transmitter arranged to transmit radio signals of frequencies less than 10 MHz, wherein each of said first and second radio frequency receivers is arranged to receive and process signals transmitted from said radio frequency transmitter and wherein the proximity detecting apparatus comprises means arranged to combine signals processed by said first and second radio frequency receivers so as to generate data indicative of a position of said radio frequency transmitter relative to said first and second radio frequency receivers (see col. 5, lines 39-50; col. 6, lines 21-24; col. 10, lines 26-28; Fig. 3).

Regarding **claim 16**, Seal discloses a low frequency radio receiver for use in a proximity detecting system (see col. 5, lines 58-60; abstract; Figs. 1 & 20), the radio frequency receiver comprising

three antenna coils each being operable to receive radio frequency signals at frequencies less than 10 MHz (see col. 5, lines 1-10,18-22; col. 10, lines 26-28; Figs. 1-2 & 4), where the system uses sensors for receiving and transmitting;

tunable receiver circuitry arranged in operative association with each coil and being arranged to modify the frequency at which signals are received by the radio frequency receiver (see col. 5, lines 32-39; Fig. 2);

signal processing means arranged to amplify and filter signals received by the radio frequency receiver (see col. 6, lines 21-24; col. 10, lines 42-44; Fig. 14); and frequency sequence identifying means arranged to identify, within a time period, a sequence of frequencies in the amplified and filtered signals (see col. 10, lines 42-46; col. 5, lines 37-39; col. 6, lines 21-24; Fig. 14). Seal clearly discloses the feature(s) indicated above as evidenced by the fact that one of ordinary skill in the art would clearly recognize. However, the examiner maintains that the feature(s) frequencies less than 10 MHz was well known in the art, as taught by Duret.

As further support in the same field of endeavor, Duret discloses the feature(s) frequencies less than 10 MHz (see col. 3, lines 22-27).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Seal as further supported by Duret to have the feature(s) frequencies less than 10 MHz, in order to provide a system for positioning a mobile object, as taught by Duret (see col. 2, lines 2-7).

Regarding **claim 17**, the combination of Seal and Duret discloses every limitation claimed, as applied above (see claim 16), in addition Seal further discloses a low frequency radio receiver according to claim 16, wherein, in a first operating condition, the receiver circuitry is arranged to select each of the three antenna coils in accordance with a specified selection procedure (see col. 5, lines 39-50; col. 6, lines 21-24; col. 10, lines 42-46; Figs. 3-4).

Regarding **claim 18**, the combination of Seal and Duret discloses every limitation claimed, as applied above (see claim 17), in addition Seal further discloses a low frequency

radio receiver according to claim 17, wherein the selection procedure comprises selecting each of the antenna coils sequentially (see col. 15, lines 15-18,53-57; abstract).

Regarding **claim 19**, the combination of Seal and Duret discloses every limitation claimed, as applied above (see claim 16), in addition Seal further discloses a low frequency radio receiver according to claim 16, wherein the frequency sequence identifying means is arranged to correlate the filtered signals associated with at least one antenna coil in order to identify said sequence of frequencies (see col. 5, lines 39-50; col. 6, lines 21-24; col. 10, lines 42-46; Figs. 3-4).

Regarding **claim 20**, the combination of Seal and Duret discloses every limitation claimed, as applied above (see claim 1), in addition Seal further discloses a low frequency radio receiver according to claim 17, wherein, for each frequency in the sequence, the receiver circuitry is arranged to operate in a second operating condition wherein none of the antenna coils is selected and the signal processor is arranged to amplify and filter signals corresponding to the second operating condition (see col. 5, lines 39-50; col. 6, lines 21-24; col. 10, lines 42-46; Figs. 3-4).

Regarding **claim 21**, the combination of Seal and Duret discloses every limitation claimed, as applied above (see claim 20), in addition Seal further discloses a low frequency radio receiver according to claim 20, wherein the processing system is arranged to use the filtered and amplified signals corresponding to the second operating condition to modify the signal strengths corresponding to the first operating condition (see col. 5, lines 39-50; col. 6, lines 21-24; col. 10, lines 42-46; Figs. 3-4).

Regarding **claim 22**, the combination of Seal and Duret discloses every limitation claimed, as applied above (see claim 16), in addition Seal further discloses a low frequency radio receiver according to claim 16, including a processing system arranged to process filtered signals corresponding to the three antenna coils in accordance with a predetermined location determining algorithm so as to identify the position of a source of said radio signals received by the radio frequency receiver (see col. 5, lines 39-50; col. 6, lines 21-24; col. 10, lines 42-46; Figs. 3-4).

Regarding **claim 23**, the combination of Seal and Duret discloses every limitation claimed, as applied above (see claim 16), in addition Seal further discloses a low frequency radio receiver according to claim 16, wherein the processing system is integral with the radio frequency receiver (see col. 6, lines 21-24; col. 10, lines 42-44; Fig. 14).

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIE J. DANIEL JR whose telephone number is (571)272-7907. The examiner can normally be reached on 8:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Appiah can be reached on (571) 272-7904. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/WJD,Jr/

WJD,Jr
18 March 2010

/Charles N. Appiah/
Supervisory Patent Examiner, Art Unit 2617